

Serial No.: 10/709,983
Confirmation No.: 8734
Applicant: LARSSON, Anders
Atty. Ref.: 7589.178.PCUS00

REMARKS:

REMARKS REGARDING THE CLAIMS:

Applicant believes that claims 1 - 10 are patentable over Ekstam and Ariga et al. Entry of new claims 11 - 14 is requested. Figures 1 & 2 and paragraphs [0006] and [0016] - [0020] provide support for the new claims. Claims 1 - 14 are pending in the present application.

IN RESPONSE TO THE OFFICE ACTION:

The following table provides differences between requirements of claim 1 of the present invention and teachings of the references of Ekstam and Ariga et al. as follows:

COMPARISON OF THE PRESENT INVENTION WITH TEACHINGS OF THE REFERENCES

Claims Requirements of the Present Invention	Ekstam (U.S. 6,729,310) Ariga (U.S. 4,984,554)
Claim 1 recites "and a fuel filter (19) located in a flow duct (14, 23) between the fuel pump and the fuel consumers (11) of the engine"	Ekstam doesn't meet this requirement. The reference in this case places the fuel pump 128 between the fuel filter/air separator 120 and the fuel consumers/engine 130/132. Ariga et al. however, satisfies this condition.
Claim 1 further recites "said flow duct (14, 23) being provided with a non-return valve (25) and a bleed valve (26 - 29) arranged downstream thereof in the normal flow direction of the fuel system"	Neither Ekstam nor Ariga et al teach or suggest the use of both a non-return valve and a bleed valve. Ekstam's teaching of a check valve 124 refers to separation of air from the fuel feed. Similarly the check valve 14' of Ariga et al. is included in an auxiliary branched circuit that is operative to remove air from fuel before starting the engine. The circuit containing the check valve is bypassed while the engine is running (Ariga et al. column 3, lines 20 - 41).
The combination of a non-return valve and a bleed valve allows fuel filter replacement without draining fuel from the lines or priming the fuel system after filter change as taught by the references.	Ekstam makes provision for fuel drainage before replacing a fuel filter (see e.g. Ekstam Column 5, lines 30 - 54) and Ariga et al. is silent concerning filter removal and replacement.

REJECTION UNDER 35 U.S.C. § 103(a):

Claims 1 - 7 and 10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ekstam (U.S. 6,729,310) in view of Ariga et al.(U.S. 4,984,554) according to the Office Action statement that is reproduced for convenient reference as follows:

Ekstam teaches all of the limitations of the claims except an explicit teaching of a check valve along the flow duct. Note that the water separator is located between the fuel tank and the low-pressure (feed) pump.

Ariga teaches a conventional feed pump for a diesel system. A check valve is shown downstream of the feed pump (Figure 4, (14')). The flow conduit goes upward downstream of the check valve and between the valve and a vent (8).

It would have been obvious to modify Ekstam by using a more conventional type of feed pump in the system (which normally requires a downstream check valve) since Ekstam makes it clear that his special pump (rotor-type) is an improvement over the known pumps of the time. Finally, claim 10 is met by the fact that the claim simply requires that the system permit an automatic purge of a new filter and this function would have been inherent in Ekstam. The applicant will note that the flow duct does not need to extend upwardly the entire length between the two valves.

In response to the Office Action applicant has considered the Examiner's selection of Ekstam in view of Ariga et al and respectfully disagrees that the combination of references contains teachings sufficient to satisfy claims rejection under 35 U.S.C. §103, which should contain points A - D (MPEP Section 706.02(j)), discussed as follows:

(A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate:

The Office Action does not point out relevant teachings of Ekstam, but only what is acknowledged as missing from this reference. Assertion that "Ekstam teaches all the limitations of the claims except an explicit teaching of a check valve" is incorrect. Ekstam teaches a valve to separate air from fuel but does not teach a bleed valve arranged downstream of a non-return valve, as recited in claim 1 of the present invention. Ariga et al. is similarly silent regarding this

limitation of claim 1 of the present invention. There is nothing in the references to suggest combining a non-return valve with a bleed valve.

(B) the difference or differences in the claim over the applied reference(s):

The Office Action discusses missing elements but does not appear to address differences between the present invention and the references.

(C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter:

The Office Action's suggestion essentially to add a check valve taught by Ariga et al. to the fuel system of Ekstam still lacks provision of a bleed valve downstream from a non-return valve. Ariga et al.'s check valve 14' separates air from fuel suggesting that the proposed modification would produce a fuel system like that of Ekstam having two valves performing the same function of air removal. This does not represent a fuel system having two valves that fulfill different needs, i.e. one prevents fuel return to a fuel filter while the other removes fuel entrained air as required by claim 1 and described at paragraphs [0006], [0017] and [0018] of the present invention. Evidence shows that modifying teachings of the references as proposed by the Office Action is unlikely to arrive at the claimed invention.

(D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification:

The Office Action appears to be silent regarding reasons that one of ordinary skill in the art would be motivated to make the proposed modification. Both references teach separation of air from fuel using valve structures suitable for the purpose.

Given the above, Applicant requests that the rejection of claim 1 under 35 U.S.C. §103(a) be reconsidered and withdrawn and that the Examiner indicate the allowance of the claim in the next paper from the Office. Since claims 2 - 7 include the limitations of claim 1, they too should be patentable over the references.

There is nothing in Ekstam to suggest automatic air removal according to claim 10 of the present invention since teachings of the reference are directed to the use of a filter element for removing air that may be returned to the fuel tank upon selection, by manual or electrical control, of the necessary position of a bleed valve 124 (see e.g. Ekstam, column 7, lines 25 - 35). Positional variation of the bleed valve of Ekstam, to direct the fuel mixture either to the engine or to the fuel tank, is not automatic.

Air removal is not a function of the non-return valve of the present invention. Absent suitable teachings from Ekstam and Ariga et al., one of ordinary skill in the art is unlikely to arrive at a non-return valve or facility for automatic air purge according to the present invention (see e.g. paragraphs [0005] and [0020] of the present application).

In view of the above, it appears that the requirement and burden of presenting of a *prima facie* case of obviousness under 35 USC §103 have not been met. Therefore Applicant requests reconsideration and withdrawal of the rejection of claims 1 - 7 and 10 under 35 USC §103(a).

According to the following statement from the Office Action, claims 8 - 9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ekstam and Ariga et al. as applied to claim 1 above, and further in view of Bartlett et al.('701).

Bartlett teaches using a vapor vent valve on the top of a high-pressure pump in a diesel system (Figure 1), thereby making this an obvious feature to include on the high-pressure pump of Ekstam because all such pumps tend to collect vapor at this location.

Regardless of their specific limitations, claims 8 and 9 include limitations of claim 1 of the present invention. It has been shown that claim 1 is patentable over the applied references. Consequently claims 8 and 9 are not believed to be obvious over the combination of references including Bartlett (U.S. 4,625,701). Reconsideration and withdrawal of rejection is requested.

CONCLUSION

Review of the references made of record and not relied upon indicates that they also fail to teach limitations that have been shown to differentiate the present invention from the applied references that include Ekstam, Ariga et al. and Bartlett et al.

Applicant has made an earnest attempt to respond to all the points included in the Office Action and, in view of the above, submits that the requirement and burden of presenting of a *prima facie* case of obviousness under 35 USC §103 have not been satisfied. Consequently, request is respectfully made for reconsideration of the application and notification of allowance of original claims 1- 10 along with new claims 11 - 14 in the next paper from the Office.

The undersigned representative requests any extension of time that may be deemed necessary to further the prosecution of this application.

The undersigned representative authorizes the Commissioner to charge any additional fees under 37 C.F.R. 1.16 or 1.17 that may be required, or credit any overpayment, to Deposit Account No. 14-1437, referencing Order No. 07589.0178..PCUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner should directly contact the undersigned by phone to further the discussion.

Respectfully submitted,



Tracy Druce
Patent Attorney
Reg. No. 35,493
202.659.0100